

CLAIMS:

1. (previously amended) An electrode structure of a carrier substrate of a semiconductor device for solder-bonding the semiconductor device to a main substrate, said electrode structure comprising:

a carrier substrate having a recess in a central area of a surface thereof;

a soldering land of the electrode structure arranged in the recess, said soldering land having a circumferential wall defining a hollow portion extending from said surface, said circumferential wall being entirely within said recess; and

a passage through an outer portion of said circumferential wall.--

2. (previously amended) The electrode structure of the carrier substrate of the semiconductor device according to claim 1, wherein said soldering land is hemispherical-shaped having a flange portion, and having a concentric hemispherical hollow portion thereinside, wherein said recess is hemispherical-shaped and said hemispherical portion of said soldering land fits into said hemispherical-shaped recess, and said soldering land being fixedly attached to said carrier substrate so that said flange portion abuts said surface of said carrier substrate.--

3. (previously amended) The electrode structure of the carrier substrate of the semiconductor device according to claim

2, wherein said passage is at least one slit portion provided in said flange portion and said circumferential wall of said soldering land adjacent to said flange portion.--

4. (previously amended) The electrode structure of said carrier substrate of said semiconductor device according to claim 1, wherein said soldering land is cylindrical having a flange portion and having a concentric cylindrical hollow portion thereinside, wherein said recess is cylindrical, said cylindrical portion of said soldering land fitting into said cylindrical recess, and said soldering land is fixedly attached to said carrier substrate so that said flange portion abuts said first surface of said carrier substrate.

5. (previously amended) Said electrode structure of said carrier substrate of said semiconductor device according to claim 4, wherein said passage is at least one slit in said flange portion and a portion of said cylindrical wall adjacent to said flange portion.

6. (original) The electrode structure of the carrier substrate of the semiconductor device according to claim 1, wherein a package of said semiconductor device is of a BGA (ball grid array) type.

7. (original) The electrode structure of the carrier substrate of the semiconductor device according to claim 1, wherein a package of said semiconductor device is of a CSP (chip scale package) type.

8. (previously amended) An electrode structure comprising:

a carrier substrate having a recess disposed on a surface thereof;

a soldering land disposed in the recess, a wall of the soldering land defining an interior hollow portion and being entirely within the recess, a flange extending from an upper edge of the wall; and

at least one slit through the wall and said flange providing a passage through the wall and the flange.--

9. (previously added) The electrode structure according to claim 8, wherein the wall is cylindrical.

10. (previously added) The electrode structure according to claim 8, wherein the wall is hemispherical.

11. (previously added) The electrode structure according to claim 8, wherein the flange extends above the surface of said carrier substrate.

12. (previously amended) An electrode structure comprising:

a carrier substrate having a recess disposed on a surface thereof;

a cup-shaped soldering land disposed in said recess, a wall of the soldering land defining an interior hollow portion, said wall being entirely within said recess; and

at least one slit through the wall extending from an upper edge of the wall and providing a passage through the wall.

13. (previously added) The electrode structure according to claim 12, wherein the wall is cylindrical.

14. (previously added) The electrode structure according to claim 12, wherein the wall is hemispherical.

15. (previously added) The electrode structure according to claim 8, wherein the soldering land further comprises a flange, said flange extending above the surface of said carrier substrate, said at least one slit extending through the flange.

16. (previously amended) An electrode structure of a carrier substrate of a semiconductor device for solder-bonding the semiconductor device to a main substrate, comprising:

a recess formed in a central area of the electrode structure;

a circumferential wall surface surrounding said recess of said central area and entirely within said recess; and

a through portion passing through said circumferential wall surface and connecting between an inside portion of said recess and an outer portion of said circumferential wall surface.

17. (previously added) The electrode structure according to claim 16, wherein the electrode structure is cylindrical having a concentric cylindrical hollow portion thereinside, said circumferential wall surface surrounding said hollow portion, and a flange portion, and wherein said cylindrical hollow portion fits into a cylindrical recess provided on an outer surface of said carrier substrate of said semiconductor device, and said electrode structure is fixedly attached to said carrier substrate so that said flange portion abuts said outer surface of said carrier substrate.

18. (previously added) The electrode structure according to claim 17, wherein said through portion is at least one slit in said flange portion and on said cylindrical circumferential wall surface adjacent to said flange portion, said slit extending from said flange portion to a position

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adjacent a bottom of said cylindrical circumferential wall
surface.